the contents of the receiver and those of the retort with dilute sulphuric acid, so as to extract all the alkaloid in the form of the hydrate $C^{40}H^{24}N^2O^4$, 6HO, of which he then determines the quantity after desiccation at 212°.

This analysis proves that the parenchyma contains 9·876 per cent. of quinine, whilst the liber only contains 2·462 per cent., or about one-fourth of the quantity that exists in the parenchyma. This result is therefore precisely the reverse of that which would have been expected from M. Wigand's experiments. It is clear also that the quinine, although much more abundant in the parenchyma, does exist in the liber. It even appears that it is the more abundant in proportion as the bark is more developed, which would lead one to suppose that the production of quinine is in relation with the formation of the liber. This consideration has naturally led M. Müller to inquire at what period and in what region of the bark the first appearance of the quinine takes place; and he proposes to take up this question as soon as he can procure a sufficient number of living Cinchona-plants.—*Pringsheim's Jahrbücher*, 1866; *Bibl. Univ. Bull. Sci.* February 25, 1867, pp. 182–184.

On the Cephalic Disk of the Remora (Echenels).

By E. Baudelot.

The disk on the head of the Remora has from the earliest period attracted the attention of observers. Among modern naturalists, some, such as Vogt and Stannius, have expressed the opinion that this disk might be regarded as the equivalent of a dorsal fin; but this view has not been supported by a rigorous determination, certain internal pieces of the disk having remained undetermined. Moreover the mechanism by means of which the fixation is effected has never been analyzed and explained satisfactorily.

The investigations which I have the honour to submit to the Academy had for their object the solution of these still obscure questions.

The disk of the Remora, as is well known, occupies the upper surface of its head. Its form is a very elongated oval, of which the slightly raised margins are formed by a fold of skin arranged so as to form all round the organ a sort of moveable frame. The upper surface of the disk is flat; on each side of the median line it presents a series of little transverse plates, which are nearly parallel and a little inclined backwards, so as partially to cover each other, like the laths of a Venetian blind. Between these laminæ there are the same number of corresponding empty spaces.

Except at its margins, the disk is sustained by an internal framework, formed by a considerable number of small bones distributed in a series of similar segments regularly arranged (*échelonnés*) from behind forwards. Each segment consists of the following pieces, four in number—an interspinous bone, two rays, and an articular ossicle.

a. The interspinous bone is a small unpaired median piece, placed at the lower surface of the disk, of the form of a slender spine, with

its point directed downwards, and completely resembling in its aspect the interspinous bones which sustain the rays of the fins. It is of the same nature as these.

b. The rays are represented by two small osseous rods, laid transversely in a horizontal plane, and articulated by their base, at the level of the median line, with the corresponding interspinous bone. Each of these rods, taken by itself, represents one-half of a fin-ray; this half, instead of remaining united with its opposite half in a vertical plane, has departed from it to fall down on the side.

c. The articular ossicle is an unpaired symmetrical bone, extended across the disk, of which it occupies the whole width. It consists of a very narrow median portion and of two lateral portions, which are widened into laminæ or quadrilateral palettes. From the upper surface of the latter springs a small lamellar apophysis directed backwards (articular apophysis), beneath which the extremity of the ray belonging to the same segment is attached.

This ossicle, the nature of which has hitherto been misunderstood, must, in my opinion, be regarded as the equivalent of the little osseous nodule which occurs in the fin in the space left between the bases of the two halves of a ray.

As regards the mechanism by means of which the fixation of the disk is effected, this is easy to understand when we have ascertained the arrangement of the pieces of this little apparatus.

Each ray, in fact, serves as a support to a lamina of the disk. It is capable of moving upon its anterior border as upon a hinge, and consequently of inclining the lamina with which it corresponds either forwards or backwards. This double movement is effected by means of small muscles inserted, on the one hand, upon an apophysis of the base of the rays projecting at the lower surface of the disk, and, on the other, upon the interspinous bones of the neighbouring segments. These bundles correspond with the elevator and depressor muscles of the rays of fins.

It is easy to demonstrate, by means of a very simple geometrical construction, that when the lamellæ of the disk are raised, the space which they intercept is enlarged; the air consequently tends to become rarefied in this space, and, as all communication with the exterior is interrupted by the cutaneous fold which borders the disk, an effect of suction is thus produced, exactly comparable to that of the cupping-glass.—*Comptes Rendus*, March 18, 1867, pp. 625–627.

Apus *and* Branchipus.

Mr. Grunow has lately discovered at Pottenstein, near Vienna, a locality of *Apus cancriformis* and of *Branchipus stagnalis*, the two Phyllopoda remarkable for their affinity with the extinct *Hymenocaris*, *Ceratiocaris*, *Dithyrocaris*, and Limuloid Crustaceans. The *Apus* and *Branchipus* under notice live in a pool about 20 feet broad and 30 feet long, which is completely dried up in summers that are hot throughout. In September 1866 myriads were observed in the slimy water of the pool.—*Imp. Geol. Instit. Vienna*, Feb. 19, 1867.